TREMCO

APPLICATION INSTRUCTIONS

VULKEM® 360NF/351

Pedestrian and Waterproofing System

1. PURPOSE

1.1 The purpose of this document is to establish uniform procedures for applying the Vulkem® 360NF/351 Pedestrian Deck Coating System. The techniques involved may require modifications to adjust to jobsite conditions. If you have any questions about your application, contact your local Tremco Sales Representative for specific design requirements.

1.2 This document will provide the necessary instructions and troubleshooting for the application of the Vulkem Pedestrian Deck Coating System to qualify for the manufacturer's warranty.

2. INSPECTION OF JOBSITE CONDITIONS

2.1 Investigation of the substrate should be performed to determine the type of surface preparation that will need to take place to achieve the appropriate surface profile required for the coating application. Depending on the condition of the concrete, one or more types of surface preparations may be required. Refer to ICRI's Technical Guideline No. 310.2R-2013 – Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings and Polymer Overlays for best practices on selecting the appropriate method of concrete preparation. Thin film or high-build coatings will require the surface profile, CSP 2-4.

3. CONDITIONS FOR CONCRETE SURFACES

3.1 Concrete shall be water-cured and attain a 3000-psi minimum compressive strength. Moisture content in the concrete must be lower than 4.5% as measured using a Tramex CME 4 Moisture Meter. Depending on concrete construction and job site location, additional concrete testing may be required. Please contact your local Tremco Sales or Technical Representative.

3.2 Concrete shall be free of any laitance which can usually be achieved by shotblasting (preferred method) or sandblasting the surface. For proper methods, refer to ICRI's Technical Guideline No. 310.2R-2013.

3.3 Concrete surface shall be properly cleaned so that the surface to receive the coating, sealant, or liquid-applied flashing is free of mold, paint, sealers, coatings, curing agents, loose particles, and other contamination or foreign matter that may interfere with the adhesion. Jobsite conditions may require the use of a Vulkem Primer.

3.4 Shrinkage cracks in the concrete surface that are 1/16" (1.6 mm) wide or greater shall be ground out to a minimum 1/4" wide x 1/2" deep (6 mm x 12 mm) and treated according to the instructions in section 6, Detail Work.

3.5 Structural cracks regardless of width shall be ground out to minimum 1/4" wide x 1/2" deep (6 mm x 12 mm) and treated according to the instructions in Section 6, Detail Work.

3.6 Spalled areas shall be cleaned free of loose contaminants prior to repair. Because jobsite conditions vary, it is recommended that you contact Tremco Technical Services at 866-209-2404 for the best method of repair.

3.7 In the event of exposed reinforcing steel, it is recommended that the structural engineer of record be contacted for investigation and for best repair method.

3.8 Surfaces shall be made free of defects that may telegraph and show through the finished coating. Surfaces that are rough (fins, ridges, exposed aggregate, honeycombs, deep broom finish, etc.) shall be leveled and made smooth by applying a coat of sand-filled epoxy.

3.9 All drains shall be cleaned and operative. Drains shall be recessed lower than the deck surface. The surface shall be sloped to drain to provide positive drainage. Drains should be detailed as instructed below:

- Cut a 1/4" wide x 1/2" deep (6 mm x 12 mm) keyway into the concrete surface at any point where the coating will have an exposed terminating edge – that is, any point where the coating will end in an open area subject to traffic, for example at the end of a ramp, around drains and alongside expansion joints.

3.10 If the project is a restoration deck, old sealant and backing material shall be removed. The joint interface will require a thorough wire brushing, grinding, sandblasting, solvent washing and/or primer.

4. SPECIAL SURFACES

4.1 Vulkem 360NF requires TREMprime® Non-Porous Primer on metal surfaces. Lap joints must be sealed with Dymonic® 100 and coated with Vulkem 360NF in order to cover seams, bolts and rivets prior to applying the system.

5. JOBSITE MATERIALS

5.1 Recommended materials and their uses are as follows:

Dymonic 100: A one-part, moisture-curing, gun grade polyurethane sealant for use in precast, masonry, expansion joints, control joints and for use in forming cants.

Vulkem 360NF Base Coat: A two-part, low odor, low VOC, polyurethane coating used as the elastomeric waterproofing membrane of the system available in SL (self-leveling) for horizontal application.

Vulkem 351 Top Coat: A one-part, aliphatic, polyurethane top coat providing a chemical- and UV-resistant, color stable, weatherproof wearing surface.

Vulkem Primer #171: A one-part, film-forming primer to be used on porous surfaces.

Vulkem 191 Primer: A low-VOC compliant, one-part, porous and interlaminary primer for use in applying a fresh coat of Vulkem coating or sealant after preceding coat has been exposed for long periods of time.

Aggregate: 30-40 mesh (0.6-0.7 mm diameter) silica sand or alumina oxide which imparts a textured finish. NOTE: Aggregate may not be required for vertical applications.

Water: 1 gallon of water for every 5 gallons of Vulkem 360NF Base Coat.

5.2 Refer to the project manager for your specific job requirements.

6. DETAIL WORK

Note: Do not apply sealant or coatings to a frosty, damp, or wet surface or when substrate temperature is below 40 °F (4 °C) or the surface temperature is above 110 °F (43 °C). Cure times as stated below are based upon standard ambient conditions of 75 °F (25 °C), 50% RH. A decrease in ambient temperature and humidity will significantly lengthen the cure time.

6.1 Lay a 1/4" (6 mm) diameter backer rod into the corner at the juncture of all horizontal and vertical surfaces such as curbs, wall sections, columns, or penetrations through the deck. Apply a bead of Dymonic 100 1" (2.5 cm) wide over the backer rod. Tool the sealant bead to for a 45° cant. Use sufficient pressure to force out any entrapped air and to assure complete wetting of the surface. Remove excess sealant from the deck or wall joint. NOTE: Backer rod is only required for moving joints.

6.2 Install a backer rod, 1/8" to 1/4" (3 mm to 6 mm) diameter larger than the joint width to all prepared control joints. Set depth of backer rod to control the depth of the sealant. (Depth of sealant is measured from the top of the backer rod to the top of the concrete surface.) Proper depth of sealant is as follows:

- For joints 1/4" (6.4 mm) to 1/2" (12.7 mm) wide, the depth ratio should be equal.
- Joints 1/2" (12.7 mm) wide or greater should have a sealant depth of 1/2" (12.7 mm). The minimum joint size is 1/4" x 1/4" (6.4 mm x 6.4 mm).

6.3 All cracks and joints shall be sealed with Tremco approved sealant, and tooled flush with the surface. Note: Expansion joints should not be coated over. A full line of expansion joint solutions is available from Tremco Construction Products Group companies. For treatment of expansion joints, contact your local Tremco Sales Representative.

6.4 Allow sealant to cure overnight.

6.5 Apply a strip of masking tape or duct tape to the vertical sections, 2" or 3" above the Dymonic 100 Sealant's cant to provide a neat termination of the vertical detail coat. When job site conditions of a finished façade occur, terminate the coating at the sealant cant bead on the horizontal. Please consult your local Technical Sales Representative if there are any questions.

6.6 Prior to the addition of water, Vulkem 360NF should be mixed with a spiral paint mixing paddle at a rate of 500 rpm for a minimum of 5 min. After Vulkem 360NF is thoroughly mixed, add 1 gal of tap water to 1 Gal of Vulkem 3650NF. Mix until all water is encapsulated within the Vulkem 360NF. There should be no visible striations at the end of mixing.

6.7 Apply a 25-mil (.64 mm) thick detail coat of Vulkem 360NF 6" (150 mm) wide centered over all untreated cracks, all routed and sealed cracks and over all cold joints. Feather-edge terminating edge of detail coat to keep these edges from showing through the finished coating.

6.8 Allow all detail coats to cure for a minimum of 4 to 6 hr depending on temperature and humidity.
NOTE: Recommended coverage rates are approximate. Sand loading methods and concrete surface profiles my increase the amount of material required to obtain a uniform coverage.

7. COATING APPLICATION

7.1 Please refer to mixing instruction in Section 6.6.

7.2 BASE COAT: **1 gallon of water must be added to Vulkem 360NF or it will not cure properly.** Apply Vulkem 360NF at 40-64 ft²/gal or 25-40 wet mils (0.6-1 mm) thick to the entire area to be coated, including over all detail coats, but excluding expansion joints. The recommended method of application is with a notched squeegee. Cross-rolling may follow in the event the coating needs to be leveled. Vulkem 360NF can be applied with a solvent-resistant, medium-nap (3/8" to 1/2" [9.5 mm to 12.7 mm]) roller sleeve.

7.3 Allow Vulkem 360NF to cure a minimum of 6 hrs and a maximum of 24 hr. Cure rates depend on temperature and humidity. Refer to cure rate guideline in chart at the end of this document.

7.4 If the Vulkem 360NF has been applied for 24 hr or longer during the ideal temperature application range (see chart on last page of document), it should be cleaned with a damp cloth of Xylene (do not saturate it). Prime coat it with Vulkem 191 Primer. We highly recommend that you contact your local Tremco Sales Representative with any questions on the appropriateness of priming.

7.5 Mix the Vulkem 351 Top Coat using an appropriate mixing blade an electric drill to assure there is no settlement in the bottom of the pail and the color of the material is consistent with no streaks or striations. For recommendations on mixer options, contact Tremco Technical Services. Boxing of pails is recommended for color consistency between different lots.

7.6 TOP COAT: There are two acceptable methods for installing the top coat. They are as follows:

Method A

7.6.1 Apply the mixed Vulkem 351 with a medium-nap, solvent-resistant roller sleeve at a rate of 105 ft²/gal (2.6 M²/L) to yield approximately 15 wet mils. Remove excess material from the roller by using a screen in the pail to avoid puddles or ponding.

7.6.2 Apply the Vulkem 351 in sections that can be easily reached for backrolling. Immediately after applying the Vulkem 351, broadcast 30 to 40 mesh (0.4 to 0.5 mm diameter) silica sand or aluminum oxide into the wet Vulkem 351 and backroll to evenly distribute the aggregate. For a moderately textured finish, use 15 to 18 lb of sand/gal of Vulkem 351 (1.8 to 2.2 kg/L). Backrolling is necessary to ensure that all of the sand is completely encapsulated into the liquid.

7.6.3 The textured properties of the finished deck coating system aid in the system's wear and slip resistance. Tremco recommends a test patch be completed by the applicator and customer acceptance obtained prior to the application.

7.6.4 Do not open to foot traffic for a minimum of 24 hr following full cure of Vulkem 351.

Method B

7.6.5 Apply the mixed Vulkem 351 with a medium nap solvent resistant roller sleeve at a rate of 200 square feet per gallon (5 M²/L) to yield 8 wet mils. Take care to apply an even coat without puddles or thick roller edge lines.

7.6.6 Broadcast to refusal the aggregate onto the wet surface of the Vulkem 351 coat. Cover the entire surface leaving no wet spots.

7.6.7 Allow the Vulkem 351 to cure overnight.

7.6.8 Sweep and vacuum off all loose, unbound aggregate.

7.6.9 Mix Vulkem 351 top coat as specified in 7.5.

7.6.10 Apply Vulkem 351 with a medium nap solvent resistant roller sleeve at a rate of 200 square feet per gallon (5 M²/L) to yield 8 wet mils. Take care to evenly apply the coating with no puddling. Remove excess material from the roller by using a screen in the pail to avoid puddles or ponding of the material.

7.6.11 Allow the Vulkem 351 to cure for 24 hours prior to pedestrian traffic or placement of deck furniture.

7.6.12 The textured properties of the finished deck coating system contribute to the system's wear resistance and slip resistance. Tremco recommends installing a test patch and gaining customer acceptance prior to installation.

8. CLEAN UP

8.1 Clean all adjacent areas to remove any stains or spills with Toluene or Xylene.

8.2 Clean tools or equipment with Toluene, or Xylene before materials cure.

8.3 Clean hands by soaking in hot, soapy water, then brushing with a stiff-bristle brush.

9. USAGE

The following is a guide to estimate material usage:

Dymonic 100: For a 1" (25 mm) cant bead over a 1/4" (6 mm) backer rod, 1 case of sealant for every 48 lf (14.6 M) is required.

Vulkem 360NF Base Coat: Application at a rate of 40-64 ft²/gal (1.01-1.57 M²/L) will yield a mil thickness of 25-40 mils.

Vulkem 351 Top Coat: Application at a rate of 105 ft²/gal (2.6 M²/L) will yield a mil thickness of 15 mils wet.

Aggregate: Approximately 15 to 18 lb of approved aggregate will be used with each gallon of Vulkem 351 as prescribed in Section 7.

10. TROUBLESHOOTING

This section describes common industry application issues when certain environmental conditions exist and their remedies. If any of these should occur, it is always recommended that you contact your local Tremco Sales Representative or Tremco Technical Services.

10.1 Tremco requires that any possible recoating job be reviewed and approved by your Sales and/or Technical Representative prior to installation.

10.2 When a deck contains too much moisture, the moisture may change into a vapor, which then condenses at the concrete-membrane interface before the coating has cured and may cause blisters or bubbles, ultimately interfering with proper adhesion. If this should occur, the blisters can be cut out, allowing moisture to escape. After moisture has escaped and the surface is dry, the area can be repaired.

10.3 If the coating application that has been installed at a thickness that is greater than our installation instructions, pinholes, blisters or bubbles may develop in the coating. To avoid this occurrence, the material should be applied in accordance to the installation instructions.

10.4 If the coating is applied in very hot ambient temperatures, the air in the small spaces between the concrete particles increases in volume and forms blisters. Contact Technical Services should this occur.

10.5 If the previous coating application has not fully cured, solvent may become trapped between the coats and lead to large blisters. When cut out, they may still be tacky on the underside. Blisters may be cut out and repaired after the surface has been allowed to fully dry.

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11. WEATHER IMPACT ON COATING APPLICATION

This section discusses the impact of applying these coatings outside the ideal temperature application range of 65 to 85 °F (18.3 to 29.4 °C) at 50% RH.

11.1 At temperatures lower than the ideal range, the material will become viscous and it will cure at a slower rate. Refer to the chart below for approximate cure rates at varying temperatures.

11.2 Deck temperatures may affect cure rates even when ambient temperatures are high.

11.3 Enclosed areas may slow the cure rate of the coating because humidity levels tend to be low in these conditions due to the low exchange of air over the membrane.

11.4 In extremely dry conditions with RH less than 50%, even with temperatures are high, cure rates can still be extended.

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QUICK REFERENCE APPLICATION CHART

LAYER	PRODUCT	WET MILS	CURE TIME*	SQUARE FEET PER GALLON
Base Coat	Vulkem 360NF	25 to 40	6 to 12 hr	40-64
Top Coat for Method A	Vulkem 351	15	6 to 8 hr	105
Top Coat for Method B	Vulkem 351	8	6 to 8 hr	200

*Cure times are based on ideal ambient temperature at 50% RH. See chart below for ideal temperature range.

APPROXIMATE CURE TIMES IN HOURS AT 50% RH

TEMPERATURE AT 50% RH	VULKEM 360NF	VULKEM 351
40-55 °F 4.4-12.8 °C	40 to 72	40
55-65 °F 12.8-18.3 °C	12 to 40	12 to 24
65-85 °F 18.3-29.4 °C	6 to 12	6 to 8
85 °F 29.4 °C	4 to 6	2 to 4

Variations in temperature and humidity can affect the cure rate of the coating. The above chart should be used as a guide only to determine the approximate rate of cure. Other factors can also influence the cure rate such as substrate temperature and enclosed environments. For more information about proper application procedures please refer to the installation instructions or contact Technical Services.